CLAIMS

1. A computer program product, tangibly embodied in an information carrier, comprising instructions operable to cause data processing apparatus to:

receive a specification of one or more controllers, each controller having at least one associated data structure of data elements, each data structure being associated with exactly one controller, and one or more data mappings, each data mapping specifying a data source for a data element, each data mapping being a context mapping or a model mapping, each context mapping binding the data element to another data element, each model mapping specifying a model and a supply function, the supply function being operable to derive a value of the data element from the model;

derive one or more data dependency relationships from the data mappings, each data dependency relationship being directed from a controller to one other controller or to one model, one data dependency relationship being derived whenever there is at least one data mapping between the controller and the other controller or the model; and

visualize the data dependency relationships by displaying a link for each of one or more data dependency relationships, each link showing a direction of data dependency.

2. The computer program product of claim 1, wherein the data structure is a tree.

3. The computer program product of claim 1, wherein the instructions to receive a specification comprise instructions to receive a specification of a component encapsulating the controllers and including the mappings, and wherein the controllers comprise at least one interface controller and at least one view controller.

4. The computer program product of claim 3, wherein the controllers further comprise a configuration controller, a component controller, or a custom controller.

5. The computer program product of claim 1, further comprising instructions to:

receive user input editing a first link; and

modify the data dependency relationship specified by the first link in accordance with the user input, the data dependency relationship being modified by modifying the data mappings, wherein the modified data mappings correspond to the user input.

6. The computer program product of claim 5, wherein the first link has a source end, the source end specifying the source of data for the data dependency relationship, and the instructions to receive the user input comprise instructions to:

receive user input moving the source end of the first link from a first data source to a second data source, the first and second data source each being one of the controllers or models.

7. The computer program product of claim 5, wherein the instructions to receive the user input cause the data processing equipment to:

receive user input changing the direction of the data dependency relationship for the first link.

8. The computer program product of claim 1, further comprising instructions to:

receive user input requesting a display of a detail view of a second link, the second link having a source and a destination; and

respond to the user input by displaying all the data mappings that have the same source and destination as the second link.

9. The computer program product of claim 1, further comprising instructions to:

receive user input to filter the displayed links using a filter; and

display only data dependency relationships satisfying the filter.

10. The computer program product of claim 9, wherein the filter specifies all data dependency relationships having selected models or controllers as the source.

11. The computer program product of claim 9, wherein the filter specifies all data dependency relationships having a selected controller as the source or the destination, or having a selected model as the source.

12. The method of claim 1, further comprising instructions to:

receive user input to filter the data mappings using a filter;

derive one or more filtered data dependency relationships from the data mappings satisfying the filter; and

visualize the filtered data dependency relationships.

13. The method of claim 12, wherein the filter specifies all data mappings having selected models or controllers as the data source.

14. The method of claim 12, wherein the filter specifies all data mappings having a selected controller or model as the data source, and all data mappings specifying a data source for the selected controller.

15. A system comprising:

means for receiving a specification of a component, wherein the component encapsulates one or more controllers, each controller having at least one associated data structure of data elements, each data structure being associated with exactly one controller, the component including one or more data mappings, each data mapping specifying a data source for a data element, each data mapping being a context mapping or a model mapping, each context mapping binding the data element to another data element, each model mapping specifying a model and a supply function, the supply function being operable to derive a value of the data element from the model;

means for deriving one or more data dependency relationships from the data mappings, each data dependency relationship being directed from a controller to one other controller or to one model, one data dependency relationship being derived whenever there is at least one data mapping between the controller and the other controller or the model; and

means for visualizing the data dependency relationships by displaying a link for each

of one or more data dependency relationships, each link showing a direction of data dependency.

16. The system of claim 15, further comprising:

means for receiving user input editing a link; and

means for modifying the data dependency relationship specified by the link in accordance with the user input, the data dependency relationship being modified by modifying the data mappings, wherein the modified data mappings correspond to the user input.

17. The system of claim 15, further comprising:

means for receiving user input requesting a display of a detail view of a link, the link having a source and a destination; and

means for responding to the user input by displaying all the data mappings that have the same source and destination as the link.

18. A method comprising:

receiving a specification of a component, wherein the component encapsulates one or more controllers, each controller having at least one associated data structure of data elements, each data structure being associated with exactly one controller, the component including one or more data mappings, each data mapping specifying a data source for a data element, each data mapping being a context mapping or a model mapping, each context mapping binding the data element to another data element, each model mapping specifying a model and a supply function, the supply function being operable to derive a value of the data element from the model;

deriving one or more data dependency relationships from the data mappings, each data dependency relationship being directed from a controller to one other controller or to one model, one data dependency relationship being derived whenever there is at least one data mapping between the controller and the other controller or the model; and

visualizing the data dependency relationships by displaying a link for each of one or more data dependency relationships, each link showing a direction of data dependency.

19. The method of claim 18, further comprising:

receiving user input editing a link; and

modifying the data dependency relationship specified by the link in accordance with the user input, the data dependency relationship being modified by modifying the data mappings, wherein the modified data mappings correspond to the user input.

20. The method of claim 18, further comprising:

receiving user input requesting a display of a detail view of a link, the link having a source and a destination; and

responding to the user input by displaying all the data mappings that have the same source and destination as the link.

21. A computer program product, tangibly embodied in an information carrier, comprising instructions operable to cause data processing apparatus to:

receive a specification of one or more controllers, each controller having at least one associated data structure of data elements, each data structure being associated with exactly one controller, and one or more data mappings, each data mapping specifying a data source for a data element;

display a link for each of one or more data dependency relationships, each data dependency relationship being directed from a controller to one other controller or to one model, each data dependency relationship indicating that there is at least one data mapping between the controller and the other controller or the model and representing all the data mappings in the same direction between the controller and the other control or the model, each link showing the direction of data dependency;

receive user input editing a first link; and

modify the data mappings represented by the data dependency relationship specified by the first link in accordance with the user input.